4.3.1 Signal Timing Implementation

The recommended signal timing modifications were presented to City of Lincoln staff for approval and implementation. After implementation of the new signal timing information, field reviews were conducted. Using information and comments from field reviews, refined (final) AM Peak, Midday, and PM Peak signal timing/progression plans were developed which included cycle length, splits, offsets, and time-space diagrams. A summary of the signal timing changes made to the six corridors is included in Appendix C. These summaries include signal timing split, cycle length and offset changes for each intersection.

The analysis conducted in this project did not include coordinated signal timings for any of the several, signalized, mid-block pedestrian crossings. The City of Lincoln currently operates these pedestrian signals in actuated mode, such that pedestrian demand, registered by pedestrian pushbutton calls, cause the signal to immediately transition from serving vehicles to serving the pedestrian movement. Such interruptions in arterial flow are entirely random, occurring without regard for the approach of a platoon of vehicles progressing along the corridor.

While this immediate pedestrian service does satisfy pedestrian needs, it can cause disruption to the coordinated traffic flow on the arterial street. Depending on how frequent pedestrians appear, it can provide a significant and continuing breakdown of traffic flow. In order to avoid such breakdowns in flow, the coordinated timing plan can, instead, include these signalized pedestrian crossings so that platoons of vehicles are progressed through these minor "intersections", taking priority over the pedestrians waiting to cross.

If the guaranteed window of passage for vehicles traversing through these crossings was made too long, then pedestrians would have the inclination to jaywalk. Therefore, this guaranteed window of passage for vehicles should be short and varied at each location depending on the vehicular and pedestrian demands. With this setting, pedestrians are likely to be witnessing a congested roadway during the portions of the cycle when the pedestrian service is temporarily prevented. If numerous vehicles and/or closely approaching platoons are present, there should be little inclination for pedestrians to attempt jaywalking. Even if only the first portions of platoons are guaranteed passage, this should improve traffic operations and safety. If an entire platoon of approaching vehicles is stopped in or near the dilemma zone (which would result if there is no vehicle detection on the arterial approaching the signalized pedestrian crossings), there will be increased incidence of rear-end accidents as following vehicles fail to properly space themselves and stop safely.

It should be noted that it is important to implement a consistent signal timing setting at all signalized pedestrian crossings throughout the City. By doing so, the timing plans will not violate pedestrian and driver expectations, reducing the probability of an accident.